

The invention claimed is:

1. A curable composition comprising:
a hyperbranched polymer having a plurality of functional groups of a first type; and
a polymer having functional groups of a second type, wherein the functional groups of
the second type are reactive with the functional groups of the first type under at least certain
5 conditions.

2. The composition of claim 1, wherein the hyperbranched polymer has a weight average
molecular weight from about 1000 to about 25,000.

3. The composition of claim 1, wherein the polymer having functional groups of the
second type is an alpha,omega-telechelic linear polymer.

4. The composition of claim 1, wherein the polymer having functional groups of the
second type is a linear polymer with functional groups pendant to the main chain backbone.

5. The composition of claim 1, wherein the polymer having functional groups of the
second type is a linear polymer having a polymer backbone with two ends and having
functional groups at the two ends and pendant to the backbone.

6. The composition of claim 1, wherein the polymer having functional groups of the
second type is a branched polymer having a degree of branching less than 20%.

7. The composition of claim 4, wherein the branched polymer has a degree of branching
less than 5%.

8. The composition of claim 1, wherein the polymer having functional groups of the
second type is a hyperbranched polymer.

9. The composition of claim 1, wherein the polymer having functional groups of the second type is a dendron or multi-dendron dendrimer.
10. The composition of claim 1, wherein the polymer having functional groups of the second type is a combburst dendrigraft.
11. The composition of claim 1, wherein the hyperbranched polymer preferably has a degree of branching from about 20% to about 45% and the weight average molecular weight from about 2000 to about 20,000.
12. The composition of claim 1, wherein the hyperbranched polymer is selected from the group consisting of hyperbranched polyureas, hyperbranched polyurethanes, hyperbranched polyamidoamines, hyperbranched polyamides, hyperbranched polyesters, hyperbranched polycarbosilanes, hyperbranched polycarbosiloxanes, hyperbranched polycarosilazenes, hyperbranched polyethers, hyperbranched poly(ether ketones), hyperbranched poly(propyleneimine), hyperbranched polyalkylamines, or copolymers thereof.
13. The cured reaction product of a hyperbranched polymer having functional groups of a first type, and another polymer having functional groups of a second type, wherein the functional groups of the second type have reacted with the functional groups of the first type to form a polymer network.
14. The cured reaction product of claim 13, wherein the hyperbranched polymer has a weight average molecular weight from about 1000 to about 25,000.
15. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is an alpha,omega-telechelic linear polymer.
16. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a linear polymer with functional groups pendant to the main chain backbone.

17. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a linear polymer having a polymer backbone with two ends and having functional groups at the two ends and pendant to the backbone.

18. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a branched polymer having a degree of branching less than 20%.

19. The cured reaction product of claim 13, wherein the branched polymer has a degree of branching less than 5%.

20. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a hyperbranched polymer.

21. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a dendron or multi-dendron dendrimer.

22. The cured reaction product of claim 13, wherein the polymer having functional groups of the second type is a combburst dendrigraft.

23. The cured reaction product of claim 13, wherein the hyperbranched polymer has a degree of branching from about 20% to about 45% and the weight average molecular weight from about 2000 to about 20,000.

24. The cured reaction product of claim 13, wherein the hyperbranched polymer is selected from the group consisting of hyperbranched polyureas, hyperbranched polyurethanes, hyperbranched polyamidoamines, hyperbranched polyamides, hyperbranched polyesters, hyperbranched polycarbosilanes, hyperbranched polycarbosiloxanes, hyperbranched polycarbosilazenes, hyperbranched polyethers, hyperbranched poly(ether ketones), hyperbranched poly(propyleneimine), hyperbranched polyalkylamines, or copolymers thereof.

33. The cured product of claim 30, wherein the hyperbranched polymer has a degree of branching from about 20% to about 45% and the weight average molecular weight from about 2000 to about 20,000.

34. The cured product of claim 30, wherein the hyperbranched polymer is selected from the group consisting of hyperbranched polyureas, hyperbranched polyurethanes, hyperbranched polyamidoamines, hyperbranched polyamides, hyperbranched polyesters, hyperbranched polycarbosilanes, hyperbranched polycarbosiloxanes, hyperbranched polycarosilazenes,

5 hyperbranched polyethers, hyperbranched poly(ether ketones), hyperbranched poly(propyleneimine), hyperbranched polyalkylamines, or copolymers thereof.